

Appl. No. 10/713,526
Amdt. dated May 25, 2006
Response to Office Action Mailed March 7, 2006

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Previously Presented) A transponder for a tire condition monitoring apparatus that detects condition of a tire and wirelessly transmits data representing the detected condition in response to radio waves having a field intensity equal to or greater than a predetermined level:

wherein the transponder is provided in a tire valve attached to a wheel upon which the tire is mounted, such that the transponder is embedded in the tire;

wherein the transponder includes:

a condition detecting device for detecting a condition of the tire;

a coil antenna, which is induced by radio waves having a field intensity equal to or greater than a predetermined level to generate electricity; and

an annular casing mounted on the tire valve, the annular casing comprising an upper casing portion and a lower casing portion that are connected with each other along a plane intersecting an axis of the casing, the annular casing having an accommodating portion that accommodates the coil antenna and a projecting portion projecting into the tire from the accommodating portion, the projecting portion accommodating the condition detecting device, wherein the accommodating portion is formed at an upper periphery of the casing to extend across the upper casing portion and the lower casing portion, and wherein the projecting portion projects from the lower casing portion;

wherein, based on the electricity induced by the coil antenna, the transponder detects condition of the tire with the condition detecting device and wirelessly transmits data representing the detected condition.

2-3. (Canceled)

4. (Previously Presented) The transponder of a tire condition monitoring apparatus according to claim 1, further comprising:

a pair of annular magnetic plates, wherein the magnetic plates are each provided on one of an outer circumference and an inner circumference of the coil antenna, respectively.

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5. (Previously Presented) The transponder of a tire condition monitoring apparatus according to claim 1, further comprising:

a pair of annular magnetic plates, wherein the magnetic plates are each provided on one of axial end faces of the coil antenna, respectively.

6. (Previously Presented) An apparatus for monitoring condition of tires of a vehicle, the apparatus comprising:

a transmitter-receiver that transmits radio waves having a field intensity equal to or greater than a predetermined level at a predetermined timing; and

transponders, wherein each transponder is provided in a tire valve attached to a wheel upon which one of the tires is mounted;

wherein each transponder includes:

a pressure sensor for measuring the air pressure of the corresponding tire;

a coil antenna, wherein, when receiving the radio waves, the coil antenna induces electricity for activating the pressure sensor, and transmits the air pressure data measured by the pressure sensor; and

an annular casing mounted on the tire valve, the annular casing comprising an upper casing portion and a lower casing portion that are connected with each other along a plane intersecting an axis of the casing, the annular casing having an accommodating portion that accommodates the coil antenna and a projecting portion projecting into the tire from the accommodating portion, the projecting portion accommodating the condition detecting device, wherein the accommodating portion is formed at an upper periphery of the casing to extend across the upper casing portion and the lower casing portion, and wherein the projecting portion projects from the lower casing portion;

wherein, based on the electricity induced by the coil antenna, the transponder detects condition of the tire with the condition detecting device and wirelessly transmits data representing the detected condition.

7. (Canceled)

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8. (Original) The tire condition monitoring apparatus according to claim 6, wherein a pair of annular magnetic plates are provided for each transponder, wherein the magnetic plates of each transponder are each provided on one of an outer circumference and an inner circumference of the corresponding coil antenna, respectively.

9. (Original) The tire condition monitoring apparatus according to claim 6, wherein a pair of annular magnetic plates are provided for each transponder, wherein the magnetic plates of each transponder are each provided on one of axial end faces of the corresponding coil antenna, respectively.

10. (Previously Presented) The tire condition monitoring apparatus according to claim 1, wherein the condition detecting device is a pressure sensor, and wherein the projecting portion has a hole through which the pressure sensor measures air pressure in the tire.

11. (Previously Presented) The tire condition monitoring apparatus according to claim 10, wherein the projecting portion extends parallel to an axis of the coil antenna.

12. (Previously Presented) The tire condition monitoring apparatus according to claim 6, wherein the projecting portion has a hole through which the pressure sensor measures the air pressure in the tire.

13. (Cancelled)